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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,119	07/16/2003	Arthur E. Quaid	MAKO 2 00027-3	9089
27885	7590	12/10/2008		
FAY SHARPE LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			EXAMINER CHAO, ELMER M	
			ART UNIT 3737	PAPER NUMBER
			MAIL DATE 12/10/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/621,119

**Applicant(s)**

QUAID ET AL.

**Examiner**

ELMER CHAO

**Art Unit**

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 12-19, 21-27, 30-40, 42-50, 52-58 and 61-72 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-19, 21-27, 30-40, 42-50, 52-58 and 61-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-848)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Acknowledgement is made of the pre-brief conference request filed 10/9/2008.

### ***Response to Arguments***

2. Applicant's arguments filed 10/9/2008 have been fully considered but they are not persuasive.

Regarding Applicants' arguments with respect to the 112 rejection, Applicants are advised that the phrase "haptic object" is not a well-known or commonly used term in the art. A "haptic device" is well-known, but a "haptic object" is not. Because of this fact, there is a need for the "haptic object" to be better defined within the claims. The claims, as they stand, do not properly describe the "haptic object" sufficiently for one of ordinary skill in the art to understand it as it is described in the specifications of the instant application. The examiner advises Applicants to at least make use of the word "virtual" in the claim description.

Regarding Applicants' arguments with respect to the 103 rejection, Applicants argue that Taylor does not disclose a haptic object. Examiner notes that the description of "haptic object" in the independent claims limits the definition of a haptic object to being "a mapping between a pose of the tool and an output wrench of the haptic device" or "a mapping between a wrench applied by the user to the haptic device and an output position of the haptic device". Taylor teaches the former by teaching a correlation between a position and a braking force of the surgical device (see col. 8, lines 4-34).

Regarding Applicants' arguments with respect to Taylor, Applicant argues that "The resistance or braking forces are only generated based on the user's motion, i.e., when the user pushes against the brake" (page 4, first paragraph, last sentence, Pre-brief conference request). However, Examiner notes that Applicants are comparing Taylor to a concept that is not described in the claims of the instant application. The claims only require that a position is mapped to a wrench. Taylor describes a position that yields a braking force. The limitations are therefore met.

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 1-4, 8-10, and 12-31** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The method claim is a non-statutory process because the steps recited are purely mental steps. This rejection may be overcome by clearly and specifically tying the method to a product or apparatus by positively reciting the product or apparatus or by positively reciting subject matter that has undergone physical transformation.
5. **Claims 32-37, 39-51, 64, and 65** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to a computer program which is non-statutory subject matter.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 1-10, 12-19, 21-27, 30-40, 42-50, 52-58, and 61-72** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the phrase "haptic object" is extremely vague and is not a common term used in the art. Examiner underwent extensive research reading through Applicants' invention and still only barely grasps the concept of a "haptic object". However, Examiner does believe that a "haptic object", as broadly used and described in the Applicants' Specification, is closest to a collection of data of a site of interest relating to the size, volume, dimensions, shape, location, and possibly texture of the site of interest and which is stored digitally on a computer medium to be useful for performing haptic assisted operations on the site of interest. Examiner requests Applicant to clearly define the term and concept behind a "haptic object" such that it cannot be mistaken or misinterpreted in the claims of the instant application. Using the word "object" as part of the phrase in question does not help since "objects" are generally understood to be physical tangible entities, except in the field of computer software and programming.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-7, 9, 10, 12-19, 32-38, 40, 42-48, 66, 67, 69, and 70** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (U.S. 5,950,629).

Regarding **claims 1-5, 9, 10, 12-14, and 17-19**, Taylor et al. teach a method for use of a computer-assisted surgery system during a medical procedure, comprising: receiving information on an anatomical target region of a patient (col. 20, line 22—col. 21, line 16); tracking the position of a surgical tool as the tool is moved by a surgeon in performing the medical procedure (col. 20, line 22—col. 21, line 16); determining a scalar distance between a current position of said tool and the anatomical target region (col. 13, lines 45 - 52); providing to the user of the surgical tool a visual indication of said scalar distance (col. 13, line 48), wherein the haptic object defined by mapping between a pose of the tool and an output wrench of the haptic device (col. 20, line 22 – col. 21, line 16; col. 13, line 45 – col. 14, line 4; col. 8, lines 4-34; the 'haptic object' is the 'surgical instrument' in col. 20, line 47; the 'pose' is 'yaw', 'pitch', or 'yaw position' of

col. 20, line 7; the 'pose' can also be 'the deviation from the path' in col. 20, line 50; the 'wrench' is 'resistance force' in col. 21, line 15; also see the other cited passages).

Taylor et al. teach the limitations as discussed above but fail to explicitly teach the surgery used for removing tissue. However, Taylor et al. do teach using cutting instruments with the haptic device (col. 18, lines 27-53). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taylor et al. to remove tissue as it is a design choice that is performed by the necessity of a chosen surgical operation.

Regarding **claims 15 and 46**, Taylor et al. teach the step of using tactile feedback while positioning a surgical instrument (col. 8, lines 29-30).

Regarding **claims 16 and 47**, Taylor et al. teach providing a vibration as an indicator in order to assist the surgeon in position the surgical instrument (Taylor et al., col. 8, lines 30-31).

Regarding **claims 32-35, 40, 42-45, 48, 66, 67, and 70**, the system taught by Taylor et al. is fully capable of performing all the functional limitations recited in the claims.

10. Regarding **claims 6, 7, and 36-38**, Taylor et al. teach the limitations as discussed above but fail to explicitly teach the location of the display. However, providing the display with a haptics/tactile device is well known to those skilled in the art. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include integrating the display with a haptic device in order for

the operator to easily watch the updated distance while controlling the tool.

Furthermore, such a modification would be considered a step of making integral (see *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)).

11. **Claims 8 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. in view of Sumanaweera et al. (U.S. 6,443,894 B1). Taylor et al. teach the limitations as discussed above but fail to explicitly teach using color as a visual indicator. However, in the field of medical imaging, Sumanaweera et al. teach using color as a visual indicator (col. 13, lines 48-52). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use color as a function of distance as the visual indicator in order to alert the user of the distance between the tool and the target (for motivation see (col. 13, lines 50-52, "color is assigned for different distances").

12. **Claims 21-24 25-27, 30, 31, 49, 50, 52-57, 58, 61-64, 68, 71, and 72** are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. in view of Wodicka et al. (U.S. 5,445,144).

Regarding **claims 21, 22, 25-27, 30, 31, 49, 50, 52-54, 57, 58, 61-64, 68, 71, and 72**, Taylor et al. teach the limitations as discussed above but fail to explicitly teach an audio alert based on distance. However, in the field of medical positioning, Wodicka et al. teach using audio alerts based on distance (col. 14, lines 42-45). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the



invention to use an audio alert in order to alert the user of a distance or position status of the tool (for motivation see col. 14, lines 42-45).

Regarding **claims 23, 24, and 55**, Taylor et al. and Wodicka et al. teach the limitations as discussed above but fail to explicitly teach the positioning of the audio alert system. However, providing the alert system as integrated with a haptics/tactile device is well known to those skilled in the art. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include integrating the display with a haptic device in order for the operator to easily hear the updated distance while controlling the tool. Furthermore, such a modification would be considered a step of making integral (see *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)).

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmer Chao whose telephone number is (571)272-0674. The examiner can normally be reached on 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. C./  
Examiner, Art Unit 3737  
12/5/2008

/BRIAN CASLER/  
Supervisory Patent Examiner, Art Unit 3737